ovule and ovary tissue; and

(b) hybridizing said sets of delineated lines, recovering seed from the hybridization, sowing and cultivating said seed, and selecting hybrid lines that contain genetic material of each said set of delineated lines such that asynchronous floral development, and therefore apomixis, is conferred.

3. (Amended) The method of claim 1 wherein the differentiation in flowering response occurs across at least one member of the group consisting of short-day plants, long-day plants, dual-day-length plants, intermediate-day-length plants, ambiphotoperiodic plants, and day-neutral plants.

17. (Amended) A method for obtaining apomictic plants from sexual plants comprising:

(a) identifying naturally occurring divergence in flowering responses to various photoperiods within a plant species or group of related plant species;

(b) obtaining two sets of lines of said plant species or group of related plant species that are differentiated by their flowering responses to various photoperiods;

(c) identifying within and between said sets of lines divergence in start times and durations of female developmental stages relative to development of nongametophytic ovule and ovary

tissues;

(d) obtaining two sets of delineated lines of said species or group of related species that are differentiated by their flowering responses to various photoperiods and by their start times and durations of female developmental stages relative to development of nongametophytic ovule and ovary tissues; and

(e) producing hybrid lines that contain genetic material of each said set of delineated lines such that asynchronous floral development, and therefore apomixis, is conferred by hybridizing said two sets of delineated lines, recovering seed from the hybridization, sowing and cultivating said seed, and selecting said hybrid lines.

A3 cont'd

18. (Amended) A method for obtaining aposporic, diplosporic, or polyembryonic plants from sexual monocotyledonous or dicotyledonous plants comprising:

(a) identifying naturally occurring divergence in flowering responses to various photoperiods within a plant species or group of related plant species;

(b) obtaining two sets of lines of said plant species or group of related plant species that are differentiated by their flowering responses to various photoperiods;

(c) identifying within and between said sets of lines divergence in start times and durations of female developmental

stages selected from the group consisting of archespore formation, megasporogenesis, megagametogenesis, and early embryony relative to the development of nongametophytic ovule and ovary tissues selected from the group consisting of nucellus, integument, pericarp, hypanthium, and pistil wall;

(d) obtaining two sets of delineated lines of said species or group of related species that are differentiated by their

(i) flowering responses to various photoperiods such that divergence occurs within a member or across more than one member selected from the group consisting of short-day plants, long-day plants, dual-day-length plants, intermediate-day-length plants, and ambiphotoperiodic plants, and day-neutral plants and

A3 cont.

(ii) start times and durations of female developmental stages selected from the group consisting of archespore formation, megasporogenesis, megagametogenesis, and early embryony relative to the development of nongametophytic ovule and ovary tissues selected from the group consisting of nucellus, integument, pericarp, hypanthium, and pistil wall such that divergence occurs within one member or spans more than one member of such female developmental stages;

(e) producing by sexual reproduction, somatic cell hybridization, or colchicine induction technique polyploid, triploid, diploid, or aneuploid lines that contain genomes,

chromosomes, or genes from each said set of delineated lines such that apomixis is expressed.

19. (Amended) A method for producing apomictic plants from two or more sexual plants of the same or related species comprising:

A3 cancel.

(a) obtaining two sexual lines whose female reproductive phenotypes differ such that under similar environmental conditions asynchrony in female developmental schedules between the two lines occurs;

(b) making amphiploids by chromosome doubling of the sexual lines differing in female developmental schedules if said lines are not already polyploid; and

(c) hybridizing the two sexual lines by plant breeding or somatic cell hybridization to induce apomixis, obtaining progeny from such hybridizing of the two sexual lines, and selecting apomictic plants from among such progeny.

Please add the following new claims to the application:

A4

21. A method for obtaining apomictic plants from sexual plants comprising:

(a) obtaining at least two sets of delineated lines from a plant species or group of related plant species that are

differentiated by their flowering responses to various photoperiods and by their start times and durations of female developmental stages relative to development of nongametophytic ovule and ovary tissue; and

(b) hybridizing said sets of delineated lines by somatic cell hybridization, recovering hybrid progeny from the hybridizing of the sets of delineated lines, and selecting hybrid lines that contain genetic material of each said set of delineated lines such that asynchronous floral development, and therefore apomixis, is conferred.

22. A method for obtaining apomictic plants from sexual plants comprising:

(a) identifying naturally occurring divergence in flowering responses to various photoperiods within a plant species or group of related plant species;

(b) obtaining two sets of lines of said plant species or group of related plant species that are differentiated by their flowering responses to various photoperiods;

(c) identifying within and between said sets of lines divergence in start times and durations of female developmental stages relative to development of nongametophytic ovule and ovary tissues;

(d) obtaining two sets of delineated lines of said species

or group of related species that are differentiated by their flowering responses to various photoperiods and by their start times and durations of female developmental stages relative to development of nongametophytic ovule and ovary tissues; and

(e) producing hybrid lines that contain genetic material of each said set of delineated lines such that asynchronous floral development, and therefore apomixis, is conferred by hybridizing said two sets of delineated lines by somatic cell hybridization, recovering hybrid progeny from the hybridization, and selecting said hybrid lines.

23. The method of claim 18 wherein said producing polyploid, triploid, diploid, or aneuploid lines is by sexual reproduction.

24. The method of claim 18 wherein said producing polyploid, triploid, diploid, or aneuploid lines is by somatic cell hybridization.

25. The method of claim 18 wherein said producing polyploid, triploid, diploid, or aneuploid lines is by colchicine induction technique.

26. The method of claim 19 wherein the hybridizing of the